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Worldwide Report

NUCLEAR DEVELOPMENT AND PROLIFERATION

No. 96

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19 May 1981

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WORLDWIDE AFFAIRS

NUCLEAR POWER PLANT AGREEMENT SIGNED BETWEEN FRANCE, SOUTH KOREA

SK220111 Seoul YONHAP in English 0044 GMT 22 Apr 81

[Text] Seoul, 22 Apr (YONHAP)--Korea and France Wednesday signed a 5.5 billion-franc (\$1.24 billion) credit agreement to finance the construction of Korea's nuclear power plants Nos 9 and 10.

The signing ceremony took place in the conference room of the Korea Electric Co (Keco), the state-run firm which will be in charge of the construction, attended by Keco President Kim Yong-chun, Chairman Francois Mitterrand of the French Exim Bank, Chairman Pierre Pagezy of the European Union Bank, and executives of five French commercial banks.

The syndicated loan will be redeemed over 15 years, after eight years of grace, at an annual interest of 7.5 percent, the best terms Keco has ever received on a foreign public loan, Keco officials said.

Keco will use the funds to buy two 950-megawatt pressurized water reactors and secure a supply of nuclear fuel for 10 years, beginning in 1986.

Keco concluded a contract last November with Framatome and another French firm, which will supply the nuclear reactors, other primary facilities and nuclear fuel for the two plants, now under construction in Pugu, North Kyongsang Province.

The plants, to have a facility capacity of 950,000 kw each, are scheduled to be completed in 1987 and 1988.

CSO: 5100/2243

SWEDISH NUCLEAR FIRM STEPS UP ACTIVITIES IN MEXICO

Stockholm SVENSKA DAGBLADET in Swedish 11 Apr 81 p 29

[Article: "Sweden May Get Nuclear Energy Order"]

[Text] Mexico City. Sweden has a chance to participate in building 20 nuclear energy plants in Mexico, informed sources in Mexico City stated on Thursday. For ASEA [General Electric Company] Atom this would be an alternative to continued nuclear energy construction in Sweden.

"To be sure, we have a chance, at better odds than that of winning a money lottery. But nothing has been definitively decided, no bids submitted," says Arto Kaipainen, ASEA Atom information chief to SVENSKA DAGBLADET.

"We have had a man full time in Mexico since February. But nothing special has happened during the past few months." Mexico has not yet decided whether to use enriched uranium or natural uranium. In the latter case, Canada would probably build the reactors, with Mexico obtaining plutonium waste which can be used for nuclear weapons.

Port Construction

Following the discovery of large oil fields, Mexico has decided to refurbish its industry and transportation system. Four new ports are to be built, for the purpose among other things of lessening dependence upon transportation via the United States. This is a matter of investments of at least 100 billion kronor, and Sweden may receive part of the contract. Involved are, for example, a new iron ore port, to be built in Altamira on the east coast. At the present time the iron ore comes to the Monterey Steel Plant via a United States port.

According to the Mexican sources the first nuclear test plants will be ordered this year. The entire affair, including reactors, is worth about 20 billion kronor.

The Mexican regime, which for decades has been synonymous with the largest party, the PRI, is very positive in its attitude to Sweden.

INTER-ASIAN AFFAIRS

TALKS TO RESUME ON AUSTRALIAN URANIUM SHIPMENTS TO JAPAN

OW281235 Melbourne Overseas Service in English 1130 GMT 28 Apr 81

[Text] New shipments of Australian uranium to Japan, due to begin next year, face delay because of the lack of a nuclear safeguards agreement between the two countries. A Japanese Government mission arrived in Australia today to resume negotiation on a safeguards agreement.

However, Radio Australia's Tokyo office says the nuclear treaty with Australia is not expected to be passed by the Japanese Parliament before April or May next year at the earliest. Our office says the deputy prime minister, Mr Anthony, on a visit to Tokyo in January reaffirmed that shipments of Australian uranium under new contract will not be allowed to start until a safeguards agreement with Japan was ratified and enforced. First deliveries of yellow cake from the Ranger mine in the Northern Territory are due to be made to Japan early next year.

Meanwhile, both Japanese and Australian officials have expressed confidence that the fourth round of formal negotiations beginning in Canberra tomorrow will bring the two sides close to an agreement.

CSO: 5100/2243

AUSTRALIA

FEDERAL OPPOSITION ASSAILS NUCLEAR SAFETY RULES

Canberra THE AUSTRALIAN in English 27 Mar 81 p 4

[Text] The Federal Opposition launched a major attack yesterday on the Government over its nuclear safeguards policy.

This followed the tabling in Parliament of agreements signed recently with France, Canada and Sweden.

The Opposition spokesman on foreign affairs, Mr Bowen, said the Federal Government had retreated from its commitment to provide adequate safeguards before allowing the export of yellowcake.

The Government's policy had been perverted by agreements with such unreliable governments as those of South Korea and the Philippines, he said.

He singled out France for:

Continuing to despoil and pollute the Pacific with nuclear tests despite Australian protests.

Not signing the nuclear nonproliferation treaty.

Allowing its uranium to be used for nuclear weapons.

He charged that the Government had left Australian uranium wide open to high enrichment by France.

He said the Government's position on reprocessing was a substantial shift from its original objective of attempting to put a brake on the plutonium economy by discouraging reprocessing.

The development of fast-breeder technology by Britain, West Germany, France, the US and Japan would now be speeded up.

He said the Government was more concerned about profits to the private sector than its responsibility to this and future generations for a balanced policy in this area.

Mr Bowen said the safeguards policy originally enunciated by the Federal Government was a shambles.

"It is worse, it is literally a sellout," he said.

CSO: 5100/7532

UNIONS BAR SHIPMENT OF URANIUM OUT OF DARWIN

Maritime Unions' Action

Perth THE WEST AUSTRALIAN in English 31 Mar 81 p 3

[Text] Sydney: Maritime unions have imposed what they believe will be an effective ban on the shipment of uranium through the port of Darwin.

Bans by the Northern Territory branches of the Waterside Workers' Federation and the Seamen's Union will create a major problem for Queensland Mines, which exports yellowcake from its Nabarlek mine through Darwin.

This is the first positive move by the union movement since uranium-industry unions decided in Sydney seven weeks ago to reaffirm support for the ACTU's strong anti-uranium policy.

A ban imposed by Sydney port workers in protest against the Federal Government's agreement to supply France with uranium has prevented one small shipment leaving for six weeks.

The consignment, from the Australian Atomic Energy Commission's stockpile at Lucas Heights, was borrowed for export by Energy Resources of Australia, whose Ranger mine is not yet producing.

The chairman of Queensland Mines, Mr J. S. Millner, said that the Darwin ban was a serious matter for the uranium industry, particularly if the unions extended it to cover other ports in Queensland.

An official of the Darwin WWF, Mr Gavin Manski, said last night that yellowcake had been going out by barge manned by Seamen's Union members. The seamen had now banned it and the WWF had done the same.

"Now the only way yellowcake can be exported from here is by aircraft," he said.

"The NT Government has already threatened to call in the RAAF to export the next load, but I'd like to see them try."

Effect on Japan

Melbourne THE AGE in English 2 Apr 81 p 21

[Article by David Uren: "Union Stops Exports of Nabarlek Uranium"]

[Text] Union bans have stopped Queensland Mines from shipping uranium from its Nabarlek deposit to Japan.

The company can no longer fulfill its contract with one of the two Japanese utilities it supplies. The company's general manager, Mr John Lawler, would not say which of the two nor how much uranium was involved.

The Seamen's Union, which allowed two shipments of Nabarlek uranium to Singapore, voted two weeks ago to ban further exports.

The company turned to the Waterside Workers Federation of Australia which said it would not act to undermine the Seamen's Union and ACTU policy.

Mr Lawler said the company was confronted with a very serious problem. It was referring the matter to the Commonwealth Government, he said.

The bans, so far, are confined to Nabarlek. Trade unions are continuing to handle uranium from Mary Kathleen in Queensland and from the Australian Atomic Energy Commission's stockpile at Lucas Heights.

These have been exempt because they are supplying uranium under commitments entered into before 1973 when the ACTU adopted an official policy of opposition to exports. The bans could, however, hit the Ranger project which is due to start production later this year.

Queensland Mines had expected to ship at least 1000 tonnes of uranium this year, most of it to the two Japanese customers--Shikoku Electric Power Company. The two companies made advance payments of \$75 million to help finance development of the deposit.

It has made two shipments to date and was due to make a third. The uranium is carried on motorised barges to Singapore by V. B. Perkins and Co. They carry a maximum of 500 tonnes each. The value of cargoes is limited to about \$30 million by insurance companies.

The contract with Shikoku is for 2230 short tons over 10 years beginning 1975. Kyushu has contracted to buy 1000 short tons beginning 1977.

Government Action

Melbourne THE AGE in English 7 Apr 81 p 3

(Text)

CANBERRA. — The Federal Government is preparing a plan to bypass union bans on the export of uranium from the Northern Territory.

The plan will include alternative shipping arrangements and, as a final resort, an airlift of yellowcake to Singapore. It would then be shipped to other countries.

The strategy is being drawn up by the Department of Trade and Resources on the instructions of the Deputy Prime Minister, Mr Anthony.

Last week, Mr Anthony said he was concerned that the ACTU campaign against uranium could affect exports and damage Australia's reputation as a resource supplier. "The Government has no intention of seeing our name marred by the irresponsible actions of unions, particularly unions that will not accept their own decisions," he said.

Mr Anthony told Parliament last week that the Government would meet all uranium contracts entered into before 1972 and would fight the union bans. The Waterside Workers Federation has announced that its members will not handle uranium produced by Queensland Mines when it passes through Darwin.

Mr Anthony said the ACTU had agreed to honor all contracts entered into before 1972. He accused the Waterside Workers of "flying in the face of decisions previously taken". "I think it is a very poor state of affairs that when people enter into long-term contracts that these contracts are likely to be disrupted," he said.

Mr Anthony and the Government are concerned about the influence of the new ACTU president, Mr Dolan, a strong opponent of the uranium industry. He recently predicted that the union movement would eventually halt the development of the industry.

Queensland Mines, which operates the Nabarlek mine in the

Northern Territory, is the only company now exporting uranium through Darwin.

Senior executives of Queensland Mines will go to Darwin this week for talks with the Northern Territory Government over the union bans. The NT Minister for Mines and Energy, Mr Tuxworth, yesterday described the meeting as a "briefing".

Mr Tuxworth said that privately-operated Hercules aircraft could be used to fly the yellowcake out of Australia from Darwin or Katherine. Queensland Mines' site manager at Nabarlek, Mr John Gee, confirmed yesterday that the company had a shipment of 300 to 400 tonnes of yellowcake that was due to leave Darwin about next Monday.

The consignment is for power generation companies in Japan. Mr Gee said it would have to be converted first and this could be done in Canada, France, England or the USSR.

The shipment is the fifth since Queensland Mines began moving its yellowcake last November. Four shipments were carried to Singapore by the Darwin barge company, V. B. Perkins. In the middle of last month, members of the Seaman's Union employed by the company voted to apply a long-standing Federal ban on handling yellowcake.

Queensland Mines approached the Waterside Workers Federation to see if they would handle it across the Darwin wharf. The Federation refused. The union's Darwin secretary, Mr Brian Manning, said Federal union policy was to oppose uranium mining. Now the Seaman's Union had imposed bans in Darwin, watersiders would do the same.

The other union moving uranium in the Territory is the Transport Workers Union. Industrial officer Denis Elliott said all members in the Territory had been told that TWU Federal policy was to oppose the uranium industry.

URANIUM PRODUCTION INCREASING WHILE MARKET SHRINKS

Canberra THE AUSTRALIAN in English 30 Mar 81 p 20

[Text] At a time when many of the domestic checks along the road to mine development are being successfully negotiated by Australia's aspiring uranium producers, the world market for uranium has softened.

Fortunately, some Australian producers have had their fixed costs very largely underwritten by consumers through long-term sales contracts, loans and/or equity arrangements.

These producers have a twofold advantage over most foreign producers and those waiting in the wings in Australia. These are relatively low costs, and market protection through mutually beneficial long-term arrangements with consumers which will see the producers through the buyers' market of the early 80s and the consumers through the sellers' market that must inevitably follow.

Not-so-fortunate aspiring Australian producers must take cognisance of the weakened market. Spot prices fallen from a peak of about \$US43 a lb of U308 in May 1979 to \$US25 early this year.

Though the spot market is not a true reflection of the overall trade in uranium, most of which is sold under long-term contracts on the basis of annual price negotiations, it has some significance, albeit often overemphasised, in the marketplace.

Any producer dreads the thought of being caught in a squeeze between rising interest rates, steadily increasing costs and low contract prices, assuming that the producer can even conclude sales contracts at a time when the buyer's inclination is to hold out for even lower prices.

But the securing of long-term contracts with consumers will be essential for the development of new Australian uranium mines. Existing Queensland and Northern Territory producers, Mary Kathleen Uranium and Queensland Mines, and Energy Resources of Australia, which is due to start full production at its Ranger deposit in October, have committed most of their currently-planned capacities of 800, 1500 and 3000 tonnes of U308 in concentrates a year respectively.

New capacity under immediate consideration includes up to another 3000 tonnes a year at Ranger, as provided for, in principle, in the agreement with the Federal Government.

Also in the pipeline is development of:

--The Western Mining Esso partnerships WA Yeelirrie deposit, projected to be 2500 tonnes a year, approved by the WA Government, with a pilot plant under construction.

--Denison's NT Koonagarra deposit, projected to be 1000 tonnes a year.

--The Pancontinental and Getty-owned Jabiluka deposit, projected to be 5000 tonnes a year, both of which have submitted their final environmental impact statements and have negotiations with traditional landowners about to start.

--The CSR-Teton-MIM SA Honeymoon deposit, 450 tonnes a year.

--The Oilmin-Western Uranium-owned Beverley deposit 270 tonnes a year.

--Minatome's Queensland Ben Lomond deposit, 400 tonnes a year.

--Various other promising prospects, not least of which is Western-Mining-BP's large Roxby Downs project.

If these developments come to fruition, Australia's total production in the mid-to-late 80s would be more than 18,000 tonnes a year, compared with 1770 tonnes produced in 1980 and about 5000 tonnes projected for 1982.

Unfortunately, these potential developments have to be viewed against a market background of production outstripping demand.

Those producers fortunate enough to be able to enter long-term commitments and with the foresight to do so have taken advantage of the period of high prices just ended to make such contracts and forge relationships that will help prevent a recurrence of events and give the industry the stability it needs.

Other producers are not in such a fortunate position. Encouraged by recent high prices, a number of marginally economic US mines resumed production or came on stream in response to \$US35-plus prices. Many are now being mothballed.

In the US, production now is estimated to be running at 11,000 tonnes a year ahead of consumption.

(\$0: \$100

QUESTIONS RAISED ABOUT KALGOORLIE URANIUM OPERATION

Perth THE WEST AUSTRALIAN in English 30 Mar 81 p 19

[Text] A Goldfields Labor MP will pursue the question of yellowcake production at Kalgoorlie in the Legislative Assembly this week.

On Wednesday the Minister for Mines, Mr Jones, told the Assembly that Western Mining Corporation's pilot plant had treated 842 tonnes of ore up to the end of December and that no yellowcake had been produced from the ore.

On Thursday WMC said that since December the ore had completed its passage through the plant and 165kg of yellowcake had been produced and was now being stored at the site on the outskirts of Kalgoorlie.

In answers to other questions from the Kalgoorlie MHA, Mr E. T. Evans, Mr Jones said on Wednesday that the quantity of radioactive waste produced as a result of the WMC plant's operation was not readily known.

The waste was being disposed of in the manner described in the approved environmental review and management programme for the plant, Mr Jones said.

On Thursday Mr Evans accused Mr Jones of playing with words in his replies or showing that he was not aware of what was happening at the plant, a more serious situation.

The Minister for Mines should know how the waste was being handled and that yellowcake was actually being produced, he said.

If there were going to be problems in the handling of the pilot plant then there were likely to be problems if a full-scale uranium-processing industry was to be developed.

He would be asking more questions on the issue this week.

CSD: \$100

COMPANY MOVES TO RAISE INVESTMENT IN URANIUM MINING

Sydney THE SYDNEY MORNING HERALD in English 31 Mar 81 p 15

[Article by J. N. Pierce]

[Excerpt] Pioneer Concrete Services Ltd yesterday confirmed its ambitions to become a major resource company with cash and share exchange bids which will result in total control of the uranium miner, Queensland Mines Ltd.

The plans to extend its uranium involvement follow closely on last year's move into oil and coal through the \$163.8 million partial takeover of Ampol Petroleum Ltd.

The takeover documents issued by Pioneer last night reveal that, subject to formal agreement and Federal Government approval, Queensland Mines has arranged to supply the French group, Electricite de France with 2,600 short tons (2,359 tonnes) of uranium oxide, with deliveries beginning in 1982.

The sale, worth more than \$100 million, follows earlier contracts with Japanese and Finnish utilities.

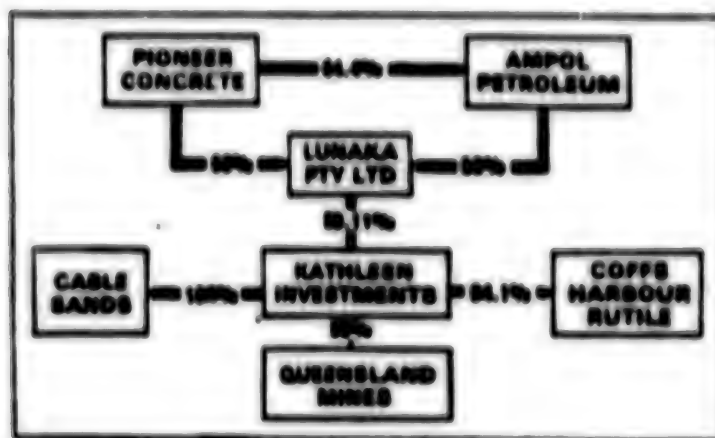
The bids announced yesterday are for the equities in Kathleen Investments (Australia) Ltd and Queensland Mines Ltd to which Pioneer is not already beneficially entitled (see diagram).

This will involve 5.04 million Kathleen Investment shares (an equity of 40.9 per cent) and 9.61 million Queensland Mines shares (an equity of 50 per cent).

They are worth \$182.5 million on the share exchange basis and \$160.6 million on the cash basis.

Four Pioneer shares (worth \$10 on Friday's market) or \$8.80 in cash are being offered for each Kathleen Investment.

Eleven Pioneer shares are being offered for every two Queensland Mines shares, making each share worth \$13.75. The cash alternative is \$12.10. Friday's market was \$11.20



C80: 5100

URANIUM TREATMENT PROCESS AT YEELIRRIE HIGHLY SUCCESSFUL

Melbourne THE AGE in English 11 Apr 81 p 31

[Article by Nigel Wilson]

[Text] Western Mining Corporation has achieved better results than it expected in developing a system to process ore from the Yeelirrie uranium deposit.

At a research plant just north of Kalgoorlie, more than 2.5 tonnes of uranium yellowcake has been produced under increasingly tight security scarcely more than six months from the beginning of operations.

The success of the pilot treatment plant built at a cost of \$8 million suggests that an early decision will be made to develop a full-scale processing plant at Yeelirrie.

WMC had to develop the technology itself because of the unique nature of the Yeelirrie ore.

On current plans, Yeelirrie should be producing at an annual rate of about 2500 short tons of uranium oxide and more than 1000 tonnes of vanadium pentoxide by 1984.

Discovered by WMC in 1971, Yeelirrie is a low-grade uranium deposit about 650 kilometres north east of Perth, containing an estimated 46,000 tonnes of uranium oxide averaging 0.14 per cent.

WMC now holds 75 per cent of the venture, with Esso exploration and production Australia 15 per cent, and the remainder held by Urangesellschaft Australia.

Yeelirrie ore has been previously researched at small plants operated by Andel in Adelaide and by WMC at Kwinana, yet it was decided to build a full-scale research plant at Kalgoorlie which could more accurately approximate the final processing system.

Because of the previous work, the pilot plant began with the most desirable extraction circuit, both from a capital cost and operating cost standpoint and on a simple flow sheet.

WMC's plan was to modify the circuit with various options if the results were not acceptable.

However, the initial process has been successful in achieving better recoveries than the 95 per cent planned. Under certain conditions the plant can operate at 98 per cent recovery.

One major success is that the circuit does not involve heating the ore after it is milled but before being leached by an alkaline system. This represents huge savings in fuel which will flow back to the venturers in higher financial yields.

The plant mirrors conditions at Yeelirrie as exactly as possible. For instance, two massive road tankers travel between the mine site and the Kalgoorlie plant five times each week carrying 65,000 litres of bore water to be used in the extraction process.

As a by-product of the uranium process, WMC has developed its own vanadium extraction process using lead sulphate. This is so successful that the company intends patenting it.

Testing will continue for most of this year, with experiments aimed at producing even greater efficiencies. It is expected that designing a full-scale plant will take most of the first six months of 1982, with a go-ahead on construction being decided by June next year.

Safety precautions are high and the operating company, Yeelirrie Management Services, says there are no industrial problems caused by the anti-uranium policies of the trade union movement.

Once the plant has completed work on the Yeelirrie ore, it is expected to be made available for research into processing systems for other metallurgical ores, particularly laterite nickel.

CSO: 5100

WA PUBLIC SHOULD KNOW NUCLEAR SHELTER LOCATIONS

Perth THE WEST AUSTRALIAN in English 9 Apr 81 p 15

[Text] There was no need for the WA Government to maintain a shroud of secrecy over the location of nuclear fallout shelters in the State, the Legislative Assembly was told yesterday.

Mr M. J. Bryce (Lab., Ascot) said that there was a need to provide shelters, possibly underground, if foreign nuclear-powered ships armed with nuclear weapons were allowed to use Cockburn Sound.

The Federal and State governments would allow such vessels to use Cockburn Sound but there had been no discussion on the provision of nuclear shelters.

[The Deputy Premier, Mr O'Connor last week refused to release information on nuclear shelters in WA. But he agreed to show Mr Bryce a schedule showing details of the shelters' location and capacity in his office.]

Mr Bryce said yesterday that these buildings were suitable only as shelters against the secondary effects of nuclear attack, such as fallout.

They could provide shelter for about 150,000 people.

The public should know the location of the shelters. Cities in Europe and other continents had these shelters clearly marked, Mr Bryce said.

CSO: 5100

WA, NT SEEK APPROVAL TO BUILD NUCLEAR POWER STATIONS

Canberra THE AUSTRALIAN in English 10 Apr 81 p 9

[Article by Laura Veltman]

[Text] The Federal Government confirmed yesterday that approaches had come from Western Australia and the Northern Territory about the building of nuclear power stations.

A spokesman for the Deputy Prime Minister, Mr Anthony, said a government inquiry was looking into development of the uranium industry.

The statement came amid Opposition allegations that the Government planned to remove legislative restrictions on the building of nuclear power stations and enrichment plants.

The Opposition spokesman on environment and conservation, Mr Stewart West said the Government was interested in commercial nuclear industry development at a time when there was no uniform State legislation covering general environmental matters or uranium mining.

Mr West also said the nomination of Kakadu National Park in the Northern Territory for protection on the United Nations World Heritage List was a "disgraceful farce" since the Government had approved uranium mining there.

Mr Anthony confirmed in Parliament earlier this week that a Canadian company, Denison Mines Ltd, had been allowed through legislation, passed last year to develop the Koongara uranium deposits in the park.

But he said that before final approval of mining was given the project had to meet certain requirements "such as agreement with Aborigines, protection of the environment and our foreign equity guidelines."

Mr West said Koongarra had been excluded from the Kakadu National Park and there were further plans to change key sections of the National Parks and Wildlife Conservation Act to extend mining leases into the park.

He said: "Australia is being pushed headlong into irresponsible endorsement of new uranium projects despite a world slump and environmental risks."

"The Honeymoon and Beverley projects in South Australia plan to use the in-situ leaching technique, which has proved environmentally-disastrous in the US, and monitoring standards to be used will fall below US standards.

"It's yet another example of companies exploiting Australian resources because of our less stringent environmental controls.

"Inadequate environmental impact statements by companies assume potentially dangerous proposals will be accepted because of inadequate environment protection legislation."

Mr West said proposed uranium projects could supply 14,000 tonnes a year but experts predicted only 7000 to 8000 tonnes could be sold.

He said: "World demand for uranium and nuclear power stations continues to fall well below predictions.

"Australian uranium will be 'flogged off' at rock bottom prices and placed in stockpiles around the world by nations who could not be trusted to abide by safeguard agreements."

CSO: 5100

RADIATION SPILL 'VICTIMS' TO GET AID FROM NSW GOVERNMENT

Canberra THE WEEKEND AUSTRALIAN in English 11-12 Apr 81 p 3

[Article by David Hancock and Errol Simper]

[Text]

THE NSW Government will supply unlimited medical aid to those people who claim to be victims of radioactive poisoning on the State's north coast.

The Government will also investigate certain aspects of the motor accident, near Laurieton, last year.

On December 4 a semi-trailer, bound for Brisbane, was involved in a head-on collision on the Pacific Highway.

The truck lost its load: two containers of radioactive material, four tonnes of chemicals - including DDT - and two tonnes of Chinese food.

About 10 people, including police and journalists, claim to have been poisoned, either by radiation or chemicals.

Local government and medical authorities at Port Macquarie have asked Mr Wran to explain 'alarming' facts to

emerge from the accident.

Yesterday the NSW Minister for Health, Mr Stewart, said he would investigate some aspects of the crash.

He has asked staff to find out why the truck was carrying food and chemicals and if any food was distributed to restaurants in Brisbane.

He said: "This is a matter for which I have great concern - but there is one great difficulty with this sort of thing.

"If we applied the law strictly, food to most of outback NSW would be prohibited."

The senior lecturer in nuclear engineering at the University of NSW, Mr Leslie Kemeny, said in Sydney on Friday it was "highly improbable" any of the north coast victims were ill from radiation.

Mr Kemeny is to deal extensively with the subject of radiation contamination in the next issue of *The Weekend Australian*.

CSO: 5100

MEDICAL TESTS ORDERED IN RADIATION SPILL CASE

Sydney THE SYDNEY MORNING HERALD in English 9 Apr 81 p 3

[Text] The NSW Health Commission has offered to conduct further medical tests on policemen and others who attend the scene of an accident involving a truck carrying radioactive materials.

However, the chairman of the commission, Dr Roderick McEwin, said yesterday that there had been no leakage of radiation at the accident site, and tests on eight policemen for radiation poisoning had been negative.

A Port Macquarie general practitioner, Dr John Mackay, has claimed that several people who went to the accident near Laurieton, 400 km north of Sydney on December 4 are suffering from radiation syndrome of chemical poisoning.

The truck was carrying a container of Americium and one of Caesium, and several tonnes of the agricultural chemicals DDT and sodium propionate.

At Laurieton police station yesterday Senior Constable Bob Deards, 33, who helped clean up after the accident, said he developed a headache later that day had had it "practically constantly since that date."

He had been violently ill for two nights after the accident.

Constable Deards said that because of his previous good health he was sure that something at the accident scene had caused his illness.

Another policeman who attended the accident on the Pacific Highway, Senior Constable Terry Clifton, who has been transferred to Sydney, said yesterday that he had lost 8kg in weight since the accident, and had had difficulty sleeping.

The Minister for Health, Mr Stewart, said yesterday that he had been advised that the maximum dose that could have been received by any of the people handling the shielding containers of radioactive materials on the truck would have been 30 millirems an hour (a millirem is a unit of effective absorbed dose of ionising radiation) and this would only have occurred while they were in close contact. "Radiation sickness of the nature reported by Dr Mackay requires doses in excess of 50 rems, which is about 2,000 times the maximum hourly dose to which people handling the protective containers could have been exposed," Mr Stewart said.

BRIEFS

RADIATION CLAIM--Adelaide--The South Australian Health Commission said yesterday there was no evidence that Aborigines suffered radiation-induced illness from fallout after the atomic tests at Maralinga in the far north-west of the state. The commission surveyed local Aborigines following reports last year that many had been affected by radiation after the tests during the fifties and early sixties at the former joint Australian-British atomic testing site. [Text] [Brisbane THE COURIER-MAIL in English 28 Mar 81 p 4]

EUROPEAN AEC TALKS--Canberra--Australian officials have completed negotiations with officials from the European Atomic Energy Commission on a draft nuclear safeguards agreement. The agreement is believed to follow closely an agreement with France. This prevents Australian uranium being reprocessed without consent. It also prohibits "third party" countries from reprocessing the uranium. [Text] [Melbourne THE AGE in English 31 Mar 81 p 5]

NATIONAL PARK URANIUM MINING--Canberra--The Federal Government is preparing a plan which would enable a Canadian company to proceed with uranium development in part of the Northern Territory Kakadu National Park--an area the Fox report said should not be developed for the time being. The Government has been planning to change key sections of the National Parks and Wildlife Conservation Act which would remove some of the tight safeguards and allow mining in national parks. This would enable the Canadian company, Denison Mines Ltd, which controls the Koongarra uranium deposit, to extend its leases into the park area. The Koongarra deposit, previously controlled by another Canadian-owned company, Noranda Australia Ltd, was examined by the inquiry into the uranium industry headed by Mr Justice Fox, which concluded that the deposit should "not be developed at least for the time being." The Government's intentions were revealed yesterday by the leader of the Opposition, Mr Hayden, who questioned the Deputy Prime Minister, Mr Anthony, in Parliament and later released further details. [By Paul Kelly] [Excerpt] [Sydney THE SYDNEY MORNING HERALD in English 8 Apr 81 p 2]

NUCLEAR CONTROLS--Senator Neal (NCP, Vic.) asked for the Government's reaction to continuing French nuclear testing in the South Pacific. Senator Guilfoyle, the Minister representing the Minister for Foreign Affairs, said that the Government was opposed to the tests. However, it was not the practice of the Government to lodge protests every time there was a test. The last formal protest was made in October to China over its testing. In reply to another question, from

Senator Mason (Dem. NSW) Senator Carrick said that there were "very strong rules" regarding the packing and movement of dangerous materials. "For my part, as a responsible Minister, I certainly have responsibility for the maintenance of a register of radioactive materials." "One of the problems that we have, which Senator Mason would understand, is that with the growing industrial use of radioactive isotopes and materials there is much more movement of them, and much more likelihood of some accidents." (In "Questions in the Senate" column) [Excerpt] [Melbourne THE AGE in English 9 Apr 81 p 9]

MKU URANIUM SEARCH--Mary Kathleen Uranium Ltd has farmed in to exploration for uranium in the Mount Isa area near its mine and treatment works in north-west Queensland. MKU has reached agreement with Agip Australia for the exploration and evaluation of seven mining leases in the Spear Creek area and four leases at Calton Hills. This is part of the intensified MKU exploration effort to find uranium in the area pending the rundown in uranium ore at Mary Kathleen. A joint venture has been formed in respect of each group of leases. The agreement commits MKU to an initial expenditure of \$95,000 on the leases. MKU can earn contributing interests of 24.77 percent in the Spear Creek group by spending a minimum of \$55,000 on the group within 18 months of starting. A maximum of 50 percent may be earned by spending \$167,000 within three years. It also may earn 21.25 percent in the Calton Hills group by spending a minimum of \$90,000 within 18 months. A maximum of 50 percent may be earned by spending \$333,000 within three years. Agip has the right within two years to farm-in to an authority to prospect in the Carlton Hills area currently held and being explored by MKU. A 50 percent interest may be earned by Agip by matching MKU's expenditure on the authority to prospect after which contributions would be made according to ownership. [Text] [Brisbane THE COURIER-MAIL in English 14 Apr 81 p 29]

ITALIAS URANIUM INTEREST--West Australian uranium is one of the main areas of interest of an Italian trade delegation which arrived in Perth in the weekend. The delegation, headed by a former Prime Minister, Mr Giulio Andreotti, is holding talks on possible uranium exports with the State and Federal governments. There was no agreement between the two countries on uranium shipments, Mr Andreotti said. An agreement would have to be signed before any contracts could go ahead. The Italian body interested in WA uranium was the country's national energy agency. [Excerpts] [Perth THE WEST AUSTRALIAN in English 13 Apr 81 p 9]

CSO: \$100

JOINT FRONT AGAINST NUCLEAR SAFEGUARDS SUGGESTED

Madras THE HINDU in English 9 Apr 81 p 9

[Article by G. K. Reddy]

[Text]

NEW DELHI, April 8

There is a suggestion that countries like India, Argentina and Brazil with on-going nuclear programmes for peaceful uses, which have not signed the non-proliferation treaty, should cooperate closely to safeguard their interests by collectively resisting the U.S. attempts to clamp down fullscope safeguards on them.

These three "threshold" countries, as they are called, are totally committed to using nuclear power only for peaceful purposes, but they are not prepared to submit to highly discriminatory safeguards, which are basically aimed at denying them their rightful opportunity to master the technological complexities of harnessing the atom for economic uses.

Though India is well ahead of the two Latin American countries, Argentina has made impressive strides in recent years in building its own reactors with a minimum of imported equipment, besides developing natural uranium and making heavy water for operating the power plants.

It has also been giving technical assistance to the neighbouring countries like Peru and Uruguay in building experimental reactors for research and development.

Brazil, on the other hand, has gone in for a very ambitious nuclear power programme with West German assistance involving an outlay of \$10 billions for the construction of four plants.

The first of these is due to be commissioned shortly with nearly 200 tonnes of natural uranium fuel supplied by Argentina. It has also a fairly advanced

research programme for achieving greater self-reliance in harnessing nuclear energy for peaceful uses.

U.S. pressure

Argentina, which has been meeting nearly two-thirds of its energy requirements from domestic oil production, hopes to achieve complete self-sufficiency soon. But since Brazil has no oil, it has to rely heavily on nuclear energy as a substitute in the face of the steep hike in petroleum prices.

The two Latin American giants with their enormous natural resources have been resisting American pressure to compel them to sign the NPT and submit to stricter international inspection.

Argentina has a cooperation agreement with India which has been operating quite usefully to mutual satisfaction through exchange of experts and information although it has not been ratified by the two Governments.

Brazil has relied heavily on the lure of heavy investment in its nuclear programme to attract a country like West Germany to build the power reactors even at the risk of attracting U.S. displeasure. The Carter Administration was not able to pressure West Germany to give up its contracts for building the nuclear power plants.

But like India, Argentina also needs some enriched uranium for its research and development, although as two nuclear power plants are run on natural uranium. But it has refused to accept fullscope safeguards as the price for getting enriched uranium from the United States.

Breach of code

The three countries have been working together in various international organisations, including the International Atomic Energy Agency which supervises, controls and enforces the inspection procedures, to resist the mounting U.S. pressure.

The common front they have been able to put up has helped to drive a wedge into the London club of nuclear exporting countries which include the United States, Canada, Britain, France, West Germany, Italy, Belgium, the Netherlands, Czechoslovakia and the Soviet Union.

The London club has not met for over a year and the so-called code it had drawn up is being observed more in the breach with West Germany and France openly defying the United States, which has lost much of its earlier ardour for non-proliferation.

The Reagan Government is inclined now to learn to live with the realities of open competition among the nuclear exporting countries themselves.

According to one estimate, the next two decades will see the construction of at least 200 nuclear power plants in the world with an outlay of nearly \$200 billions which will make the nuclear industry the most lucrative one by the turn of the century.

And in such a situation countries like India, Argentina and Brazil which have been resisting the big power pressures to give up their independent nuclear programmes feel that they have a lot to gain by closely co-operating and putting up a joint front for safeguarding their interests.

INCREASING PRESSURES TO BUILD NUCLEAR BOMB NOTED

Madras THE HINDU in English 7 Apr 81 p 9

[Article by G. K. Reddy]

[Text] New Delhi, 8 Apr--As an inevitable reaction to the U.S. bid to rearm Pakistan, there are signs of renewed political pressures building up in India for developing nuclear capability to be able to exercise the option if ever the need arose for it.

But the Government itself remains firmly committed to the policy of using nuclear energy only for peaceful purposes, although it is no longer ruling out the possibility of further tests to refine the technology for harnessing it.

The growing concern in the country at the ill-advised American move has to be viewed against the background of Pakistan's own ambitious effort to make the bomb in the not too distant future. It is the feared interaction of these twin developments that is causing serious apprehension in India at a time of increasing super power rivalries and sharpening tensions in the region.

First Salvo

The first shot in the campaign for acquiring nuclear capability, even if the country does not feel threatened enough to embark on a weapons programme, has been fired a few days back by one of the mavericks in Indian politics, Mr. Krishan Kant, who has taken a keen interest in the subject as a member of the relevant parliamentary committees before he was defeated in the last elections. But what is really significant in this context is that echoes of his plea are being heard in the Ruling Congress-I itself reflecting the concern of its own rank and file.

Incipient Campaign

The campaign as such is still in an incipient stage in the sense that it has not yet acquired the dimensions of a persistent demand cutting across the normal political alignments. But the Government has taken due note of the arguments being advanced by those pressing for a fresh look at the country's policy of abjuring the nuclear option.

The plea for a reappraisal does not imply a precipitous plunge into a bombmaking programme, but only a redefinition of its policy parameters for continuing to subscribe to the ideal of non-proliferation without prejudicing the country's defence. It calls for a resumption of the research projects for developing alternate fuels and fission systems consistent with the country's international obligations.

It will be interesting to see how the Prime Minister, Mrs. Indira Gandhi, will deal with the issue, if it is raised by some of her partymen during the defence debate later this week in Parliament. The members of the ruling party, like those in the opposition, are free to voice their views on such issues unless they are specially forbidden from doing so to avoid embarrassment to the Government.

There is need to clarify the country's nuclear policy in the light of the current developments, if only to dispel the prevailing misunderstanding abroad about India's own intentions. The moral argument cannot carry much weight with the Indian people themselves, when they see the country's security environment being increasingly threatened by the growing tensions in the region.

Modified Stand

As a great moralist, Nehru had taken the lofty stand in his time that India would never go in for nuclear weapons whatever the provocation. But Lal Bahadur Shastri modified the stand by stating that, though it had no intention of making the bomb in the foreseeable future, India could not be expected to forsake the option for all time to come committing the future generations to any particular course of action.

The present Prime Minister, Mrs. Gandhi, went a step further in ordering a test explosion. She reserved the right to have further tests, although she did not want to use nuclear power for non-peaceful purposes.

India's concern

In attempting to clear up the confusion created by Mr. Moraji Desai during the Janata rule, Mrs. Gandhi has been deftly utilising the opportunity to forewarn the world that India cannot be expected to remain unconcerned at the ambitious efforts of a neighbouring country like Pakistan to acquire nuclear arms.

And in the wake of renewed political pressures, the Government might feel obliged to restate its nuclear policy in less ambiguous terms to drive home the point that India will be compelled to make its own choice, if the induction of American arms encourages Pakistan to press forward with its nuclear gamble.

CSO: 3100/7078

BRIEFS

URANIUM ENRICHMENT PLANT SHIPMENT--Tokyo, 23 Apr (KYODO)--The uranium enrichment pilot plant at Ningyo Toge, Okayama Prefecture, made its first shipment of enriched uranium Thursday [23 April] when it sent 1 ton of the fuel to a nuclear fuel processor, the semigovernmental power reactor and nuclear fuel development corporation (DONEN) said. DONEN's pilot plant started test operations in September 1979 using domestically developed facilities and has produced 3 tons of enriched uranium which was stored at the plant, it said. The uranium shipped to the nuclear fuel processor in Tokai, Ibaraki Prefecture, will be processed into nuclear fuel sticks for use in a test operation of the first Japanese-made reactor "Fugen," it said. The enrichment plant in Ningyo Toge is operating 4,000 centrifugal separators codenamed OP-1. An additional 3,000 separators of the sophisticated OP-2 type which DONEN says has a capability twice as large as the OP-1 kind, will be put into operation next October. The plant, when put into full operation, is capable of producing 15 tons of enriched uranium which is enough to fuel a reactor generating 500,000 kilowatts of electricity for a year. [Text] [Tokyo KYODO in English 1108 GMT 23 Apr 81 OW]

CSO: 5100/2243

BRIEFS

BOMB EXPLOSION SITE--According to an agency (report), the (?crescent) jungle in the southwest of the Sind Province of Pakistan might be the site for the first bomb Pakistan is planning to explode. The report says that villagers in the area are being evacuated. The report, however, does not speak of any structural erection work so far in the area. The agency, quoting knowledgeable sources, says since the structural work would take some 2 months, July would be the earliest date Pakistan can have for carrying out its test explosion. It says the site of explosion might either be near the Rann of Cutch or near Rajasthan border or Baluchistan. [Text] (BK020725 Delhi Domestic Service in English 0240 GMT 2 May 81)

CSO: 5100/4537

BULGARIA

BRIEFS

NEW NUCLEAR REACTOR--In the port of the Kozloduy nuclear power station, the fourth nuclear reactor has arrived from the Soviet Union, which is scheduled to be commissioned this year. Despite certain difficulties caused by the rising Danube River waters, the reactor was transported to the power station by special equipment. Tonight it will be stored in the so-called control shaft, where throughout 45 days workers of the brigade, led by Gospodin Yordanov, twice hero of socialist labor, will prepare it for being installed in the fourth reactor department. [Text] [Sofia Domestic Service in Bulgarian 2030 GMT 3 Apr 81 AU]

CSO: 5100/2243

INTER-AMERICAN AFFAIRS

BRIEFS

ARGENTINE URANIUM TO BRAZIL--Mendoza, 24 Apr (NA)--Felix Rodrigo, director of the Nuclear Supplies Department of the National Atomic Energy Commission (CNEA) announced here that Argentina has already started to ship concentrated uranium to Brazil and that "new lodes of uranium" have been found in the Sierra Pintada deposit. Rodrigo asserted that the approximately 120 tons of concentrated uranium which will be delivered to Brazil this year were produced in 1980 and pointed out that "there is no concern" over the amount of our reserves since this shipment "is within our normal capability and we had provided for it long ago." He said that a work schedule is being carried out in Sierra Pintada area, San Rafael, 245 km from this capital and that the drilling aimed at detecting "new lodes of uranium has given good results so far." [Excerpt] [PY241659 Buenos Aires NOTICIAS ARGENTINAS in Spanish 1209 GMT 24 Apr 81]

CSO: 5100/2243

BRAZIL

CALS OPENS DOORS TO ADDITIONAL NUCLEAR AGREEMENTS

Brasília CORREIO BRAZILIENSE in Portuguese 22 Mar 81 p 11

[Text] London--"The Federal Republic of Germany does not have an exclusive role in the Brazilian nuclear program" declared Mines and Energy Minister Cesar Cals when he was questioned about the visit to Brazil next month--which he confirmed--by the director of the technical unit of the foreign projects group of the British Atomic Energy Agency, O. Plail. Thursday morning, Plail gave the minister an extensive explanation of the projects in the nuclear area being carried out in Great Britain in conjunction with other countries.

Although he had left open the possibility of also signing a "nuclear agreement" with Great Britain, Cesar Cals did not explain the reason for the trip of the representative of the British atomic energy sector to Brazil almost immediately after his trip to London.

Commenting on the matter, the minister observed only that "the Germans are our exclusive partners in the transfer of technology on the enrichment and reprocessing of uranium but this does not mean that there are no opportunities for common agreements with other countries in other areas of the Brazilian nuclear program."

Sophisticated Reactors

As an example of the flexibility of the Brazilian nuclear program, the minister referred to the "agreement" signed with France for Brazilian participation in the Super Fenix project, a fast breeder reactor fueled by plutonium, which represents greater sophistication in the program not only because it is one of the first of its type to go into commercial operation by 1983 but also because of the fact that it uses an explosive fuel.

In that connection, the minister revealed that negotiations are at an advanced stage in Brazil for an "agreement" with Italy aimed at developing the design of a bi-national fast breeder reactor in which the Brazilian know-how acquired from the French would certainly be used.

Thus, according to the minister's explanations, there are different stages and specialities in the Brazilian nuclear program still to be technologically covered which developed faster in some countries than in others.

Although his immediate interest is centered in "plasma technology," cited by the minister in contrast to "nuclear fusion," Cesar Cals observed that Brazil is gradually investing in new technologies in that area as a means of reducing the present gap in relation to the most advanced countries in that sector and to provide commercially competitive alternative sources of energy.

Interests and Limitations

In the case of Great Britain, he specifically cited as capable of arousing Brazilian interest, the quality control and reactor safety programs which, according to him, are highly developed, and an agreement that involves the possibility of training high-level personnel.

In that connection, there is not much difference between Great Britain and Germany, which use practically the same light-water and enriched uranium reactor (PWRs) technology, both being associated in Urenco, together with the Netherlands, in the project for the enrichment of uranium using the centrifugal system. Likewise, the development of the sector in both countries thus far seems to be similar: in both, nuclear energy supplies 10 percent of domestic energy demand.

There is a difference, however: while the Germans are limited by the agreements signed after the war regarding the use or transfer of nuclear technology for military purposes; that is one of the strong points of Great Britain, especially in the naval area.

The British have impediments of the same type, but of an ethical character, established within the "London Club" comprised of the group of nuclear countries that are prepared to maintain control of the transfer of more sophisticated technologies to third parties.

However, Great Britain concurs almost completely with the policy of the Reagan administration and British technical leaders are also convinced that nuclear technology applied to military arms is checked only by a matter of time because there are no longer any secrets in that area.

Pragmatism and Discretion

Nonetheless, the British remain discreet. In the schedule of Minister Cesar Cals--a guest of the British Government--the subject of nuclear energy was treated with apparent indifference. There was not even a representative of the Brazilian Nuclear Corporation (NUCLEBRAS) or of the National Nuclear Energy Commission (CNEN) in the minister's delegation despite the fact that it involved an eminently technical meeting.

At the meeting, it was sought to stress the interest of British Petroleum in expanding its risk areas in Brazil, and particularly the trade agreement for the purchase of coal technology and equipment signed between Babcock Contractors and the Auxiliary Company for Energy Firms (CAEEB).

As was emphasized in the London press, the trade emphasis does not provide sufficient reason to explain why, for example, the Babcock International Company, through its subsidiary Babcock Contractors, which specializes in the coal area, as well as Babcock Power, also belonging to the same group and responsible for the projects in the nuclear area, were selected by the British side. The doors to a broader exchange in the energy area were opened to a certain extent.

ADJUSTMENTS TO DELAY ANGRA-I OPERATION UNTIL SEPTEMBER

Rio de Janeiro O GLOBO in Portuguese 2 Apr 81 p 18

[Text] The Angra-I nuclear plant will not go into full-charge operation until the end of September and no longer in August as had been scheduled. Small adjustments to the so-called critical equipment (circulation pumps and transformers) necessitated the delay of approximately 1 month, the president of Furnas, Engineer Licinio Seabra, revealed in an interview yesterday.

He explained that as a result of the adjustments, it will not be possible to charge the reactor with enriched uranium this month and it will be left till May. It will be after that that the plant may be gradually put into operation until it reaches its full capacity in a period of 4 months.

Delay is Normal

Licinio Seabra said that in the case of Angra-I, which is practically ready, the delay is normal. When a plant reaches its final phase, many tests are conducted, especially in the critical equipment. The engineers then observe the behavior of the various components and it is common for some of them not to work within the specifications adopted. He said that there were problems with two circulation pumps and with a transformer, problems that have already been solved.

The president of Furnas said that the date for the official inauguration of the plant has not been set and still depends on the authorization of President Joao Figueiredo. Licinio revealed that Angra-I is being built in a period of 11 years and that during that period many technological improvements have been incorporated in it. He considers the 11 years a reasonable period for a country that is going to utilize an atomic plant for the first time.

Transfer

Regarding the new government policy of assigning the construction of Angra-II and Angra-III to the NUCLEBRAS Nuclear Plant Construction Corporation (NUCON), the president of Furnas pointed out that there is a protocol that coordinates the transfer. That protocol establishes the date of 31 July for NUCON to take on the new responsibilities. Thenceforth, Furnas will have a defined relationship with the NUCLEBRAS subsidiary.

Licinio Seabra pointed out that the financing of the next two plants will be the responsibility of NUCLEBRAS and that will ease Furnas' task of obtaining funds for projects of that scope. Last October when the government decided to transfer to NUCLEBRAS the responsibility for building the future nuclear power plants, there were many discussions that resulted in reaching a common denominator "characterized by understanding," he stressed. He believes that a large part of the personnel trained by Furnas will be transferred to NUCON but he could not guarantee whether or not there will be any dismissals of technicians. Everything depends on the way NUCON is going to work, he added.

Asked about the high prices that the consumer would have to pay for the energy generated by Angra-I, Licinio Seabra argued that the matter has not been determined. But it is common even in the United States for the consumer to end up receiving the impact of the new technologies. Brazil would not be an exception to that rule, he stressed.

The Hague--A large Brazilian order for enriched uranium placed in 1977 with the British-German Dutch consortium, Urenco, will now be supplied by the British Nuclear Fuels Ltd., a member of the consortium. With that decision, it is considered that Brazil will be able to secure a second order without difficulty.

Political circles at The Hague declared that the Dutch Government feels relieved because supplying uranium to Brazil, a country that did not sign the nuclear nonproliferation treaty, is a controversial subject in Holland.

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CSO: 5100/2227

STUDY SHOWS COMMERCIAL URANIUM MINING POSSIBLE

Santiago LA NACION in Spanish 31 Mar 81 p 8A

[Text] The Nuclear Energy Commission, together with the Chuquicamata Division of CODELCO-Chile [Copper Corporation], recently completed a study aimed at determining the feasibility of recovering uranium detected in leaching solutions from Mina Sur [Southern Mining]. At the same time, a series of processes was developed making it possible to obtain a commercial concentrate of the element, with a view to the installation of an industrial plant in the future.

Studies completed revealed that it is feasible to obtain a commercial uranium concentrate as a by-product from copper leaching solutions from Mina Sur, with an overall recovery yield of 90 percent.

The concentrate can be obtained through an intermediate stage of crude concentrate and later processing or upgrading or by means of two phases of concentration and purification.

Annual Production 14 Metric Tons

Based on the average uranium content of the mineral and results of recovery from leaching and the extractive process, one can estimate, under the current circumstances, an annual production of 14 metric tons of uranium, which could be increased to 19 by doubling the dose of phosphate added at present during the leaching process.

In addition, based on the results of the study done by engineers Antonio Moreno Osorio and Ricardo Merello Parmegiani and published by the periodical INGENIEROS, a possible increase in copper production would entail a parallel increase in uranium production.

Results

The study adds that the extraction of uranium from the mineral is dependent, not only on the concentration of uranium in the extracting solution, but also on the phosphate content, which would be on the order of 58 percent to be most favorable to recovery.

In the pilot experiment, it was possible to achieve concentrations of between 300 and 400 milligrams per liter of uranium in sulfuric acid-rich fluids, mainly due to the drop in load efficiency stemming from the contamination of the resin during the development of the process.

It was also concluded that the most suitable point for a possible industrial plant is the strong solution after dechlorinization. It is estimated that the concentration of uranium in this solution, after the industrial operation is initiated, would depend on the dose of phosphate during leaching, which would range from 18 to 10 units of uranium.

Prospecting

The uranium prospecting program began in 1974 following a strategy based on the analysis of information existing in order to choose new areas having favorable geological characteristics for the presence of radioactive minerals.

Systematic prospecting began with the "Uranium Prospecting in Chile, Phase I" project, in agreement with the UNDP and the participation of the IAEA, between 1975 and 1979. Objectives included the training of personnel and advice on prospecting in seven areas of the national territory, covering 105,000 square kilometers.

Supreme Decree

Previously, Supreme Decree No 11 of 1974 from the Ministry of Economy, Development and Reconstruction approved the National Radioactive Resources Plan (PNRR), which contains the general guidelines for national development of prospecting for and the evaluation of radioactive mineral resources, in order to ascertain their potential and possible production in order to meet the country's internal needs.

In order to carry out its objectives, the PNRR submitted to the Chilean Nuclear Energy Commission (CCHEN) three programs in a logical sequence of execution: Prospecting Program, Technical and Economic Feasibility Program and Extraction Program.

Responsibility for the execution of these programs was conferred on the Nuclear Materials Directorate of the CCHEN, where the Geology and Mining Division has been developing the Prospecting Program since 1975.

For 30 Years

Uranium prospecting began in our country 30 years ago. Between 1950 and 1974, preliminary and spot studies were made for short-range projects, mainly aimed at determining what mining districts and regions had signs of radioactivity. The results obtained were positive, but because of the short-term nature of these projects and the scarce geological knowledge of our territory, it was not possible to define favorable areas or determine interesting prospect.

During the first period of prospecting, various agreements were made with foreign and international organizations.

Between 1950 and 1956, the Production Development Corporation (CORFO), together with the Atomic Energy Commission of the United States (U.S. AEC), completed a radiometric radiation of several mining districts in the north and found anomalous values and a number of low-content mineralizations generally related to intrusive bodies. This indicated the presence of uranium, the source of energy that has made the great technological leap of the last portion of this century possible.

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CBO: 5100

GOVERNOR INTERVIEWED ON PATZCUARO NUCLEAR PLANS

Mexico City EXCELSIOR in Spanish 31 Mar 81 p 21-A

[Text] Because of the interest it holds for the people of Michoacan and the national public, the Ecological Protection Committee at Michoacan is publishing the interview held with the constitutional governor of Michoacan, engineer Cuauhtemoc Cardenas Solorzano, by journalists Arturo Hernandez Tovar, of LA VOZ DE MICHOACAN and EXCELSIOR correspondent; Adrian Cirilo, of EL SOL DE MORELIA; and J. Manuel Belmonte, of NOTICIAS, on 28 March, in Valle de Guadalupe, Michoacan, concerning the possible installation of a nuclear research center at Lake Patzcuaro.

[Question] We would like to have a new statement from you about the proposed establishment of the Patzcuaro Nuclear Research Center. You have already given us your views, but now we see that this project has been consolidated and is more definite, in terms of the decision that it will be precisely at Lake Patzcuaro that it will be established. The SUTINEN [National Nuclear Energy Institute Workers Union] has announced a campaign of which the declared purpose is to make citizens of Michoacan aware of this project, and we would like to know if at this point you have information which would be official now about what the government position is.

[Answer] There has not yet been any consultation or request on the part of the National Nuclear Research Institute for an opinion from the government of Michoacan. Personally I believe that it will not be on the basis of demonstrations or campaigns that the people of Michoacan or the national public can be convinced about where the nuclear research center should be located in terms of advantages from the national point of view.

I also believe that it is the duty first of all of the National Nuclear Research Institute, and very concretely and specifically, its administration, to make the concrete plans and define for itself where the nuclear research center should be located. In other words, it is that body which bears the responsibility for this type of question, and it remains for it in any case to define, arrange and deal with where and how to locate the nuclear research center. And it is not solely for the SUTINEN or solely for the government of Michoacan to express views on this. I believe that the first opinion and in any case the best authorized must come from the institute administration, and it will be that administration to whom first of all those who are interested in its location at one site or another should address themselves, and not to any other body or government level.

On the other hand, I believe that there is a lack of sufficient experience in Mexico, in this country, as to what changes bodies of water such as Lake Patzcuaro must undergo due to the effects of the increase in its temperature from the cooling waters of the reactors, although this will be slight, according to what some of the members of the SUTINEN have told me. We do not have experience as to what changes will occur in the immediate environs, that is to say in the discharge zones of the heated water, nor how the aquatic life in Lake Patzcuaro as a whole would be changed, in other words the lake flora and fauna, with an increase in the temperature. There is no experience in this country which can indicate to us what will happen to such very valuable species as the whitefish, or what will happen in general to aquatic life, both animal and vegetable.

Nor do we know what other sites are being considered in the republic or in the state of Michoacan, as the SUTINEN has said. We do not know what the advantages or disadvantages of each of the other sites considered might be. It is possible that other sites would not have the disadvantages obvious to us where Lake Patzcuaro is concerned.

[Question] It has been said that in Michoacan precisely at least two sites are being considered.

[Answer] And we do not know what they are. Then it would be necessary to know what those sites are, and to know what factors have been regarded as advantageous in terms of a suitable location. We do not know what the disadvantages encountered at the other sites are, or whether they are the kind which can be overcome or not.

If other sites have been analyzed, it means that they have been regarded as offering advantages too, and therefore if at the Patzcuaro site there is the disadvantage of possible effects on the body of water as important for the economic, social, tourist and other aspects of life in Michoacan, we believe that this should be taken into account with a view to the reconsideration, if necessary, of the advantages of other alternatives.

It has been said that a reactor of zero power and a 40-megawatt reactor will be installed. In such a case I would allow myself to voice doubts as to whether a research center can operate over a long period of time with only two reactors. It is presumed that a research center must grow. It is presumed that new machinery must necessarily be installed, that various procedures, various techniques and other theories must be revised, and that there will therefore be further discharge, in other words a greater volume of water speeding up the warming of Lake Patzcuaro, and therefore an increase in the general temperature of the lake and the areas in the immediate environs of the greater discharge than could be foreseen with only one machine.

There are still many doubts in this regard which have not been clarified, or I would like which one has wanted to clarify. I do not know what the reasons are and where necessary, there should be clarification and public discussion if there is a desire to arrange this on the basis of public discussion. However, I want to reiterate that it must be the administration of the National Nuclear Research Institute which decides on the location of the new center, and not the government of Michoacan, not solely the SUTINEN nor the municipality of Quirega or its communities either. All of us must express our views. It is the duty of the administration of the institute to submit its official proposals for the location of the new research center to the

proper authorities. These proposals, to be implemented in practice, will have to follow the procedures set forth by the laws which will have to be observed in this connection.

[Question] On the other hand, governor, this seems to be surrounded by an ideological issue, to involve a progressive position.

[Answer] I believe that it is very important for the country, for Mexico, to be able to promote research in the nuclear field. It is very important to become aware, as the SUTINEN has said, of the importance of research from the point of view of reducing and eventually eliminating technological dependence in this sector.

It is very important that all the studies be undertaken, that all lines of research be pursued using all possible procedures to achieve technological independence in this sector. Without any doubt, nuclear energy is a source we will have to use, one to which the country must have recourse in the future. However I believe that at this time, with all due responsibility, we must consider the risks which are still involved in its use and that we must locate installations pertaining to nuclear energy, as we must in the case of Mexico, taking these risks responsibly into account.

[Question] But would you say that it would be apt to state precisely that this means progress and technological independence but that on the other hand, in this case, the ecological system would be seriously affected?

[Answer] Because of this I believe it is very important to discuss what the possibilities of other sites are, including, if you wish, Lake Patzcuaro, but discussing the advantages and disadvantages of all sites under consideration. For although we agree that from certain points of view the community of Santa Fe de la Laguna may be the best, it is possible that there are other sites which offer sufficient advantages to justify the installation of a research center there which would allow us to advance along the path of technological independence for the country.

[Question] Can it be said that the position of the state government with regard to the establishment of this research center in the Patzcuaro lake zone specifically has now been defined?

[Answer] The fact is, I repeat, the government of Michoacan has not been consulted. The body which would have to consult with us in the first instance is the National Nuclear Research Institute. We are following with interest all views which may help to establish ours. To date, we are aware of that of the SUTINEN, as respectable and valid for us as the opinions which the Ecological Protection Committee of Michoacan has been voicing.

Personally, I believe that we must analyze all of the advantages, all of the sites under consideration, as well as all of the disadvantages of the sites considered, the risks which we might be running with regard to the increase in the temperatures in Lake Patzcuaro, which concerns me personally very much. We must know the risks which might be run in Michoacan with regard to the handling of radioactive materials. It is a fact that there has been no accident in the handling of radioactive materials in the country to date, but we must take into account the fact that as soon

as such handling begins, above all if the nuclear research center is located in Santa Fe, the risks will increase. I could not imagine a static center, and it would be absurd to presume that one would not grow, and to the extent that more radioactive materials are being handled, greater risks would be run over the distance these radioactive materials are transported from the center of the state until they leave our territory. The greater the volume of material handled, the greater the risk, inevitably.

[Question] Could it be that Michoacan can avoid running risks in this connection?

[Answer] The installation of a nuclear research center does not, insofar as my information goes, involve risks due to the radiation which would be produced at the center itself, but there is indeed a risk from the increase in the temperature, that is to say ecological changes if it is a question of Lake Patzcuaro or any body of water which might be involved. We will be taking a risk due to the handling of radioactive materials within the territory of the state, the risks including possible accidents such as those which have already occurred in other parts of the world, I don't know exactly when in Mexico, but to date none in Michoacan.

This discussion must be undertaken with the greatest objectivity and frankness, and with more honesty than has characterized it to date. It is not a question of positions of a political nature. We are clear about the need to promote research in this field, about the participation of higher educational institutions in this research and knowledge, about the search for paths to achieve technological independence for our country. However, along this path toward technological independence, and in this research, it is necessary consciously and responsibly to take into account the possible health, ecological, social and economic risks, and if there are other alternatives than Patzcuaro for the location of the plant where the risks are fewer, it would be well to give them priority attention and make them known to the national public. We are discussing all of the alternatives, not just Patzcuaro.

[Question] On the other hand, the Ecological Protection Committee of Michoacan, in response to an explanation made public just today, is saying that holding this demonstration which has been announced will in some way harm the sovereignty of Michoacan. It had already voiced this view earlier. How do you see the situation now?

[Answer] We will respect the exercise of the rights by all the citizens. Everyone in Michoacan has a right to express himself, everyone in Michoacan has a right to demonstrate. Now then, a question of such overwhelming importance for Michoacan, because of the risks involved to a major social, economic and tourist resource such as Lake Patzcuaro, should not be discussed in the streets or decided on the basis of demonstrations. We are willing to hear all kinds of arguments and views, but here it will be the scientists, the men of science and scholars who are working on nuclear questions, who are working on questions of ecological protection, who are working in the most widely varied related disciplines, who will have to voice their views. It will be on the basis of this diversity of opinions that the state government will in the final analysis form and regulate its opinion when this is requested of it in official fashion.

Morelia, Michoacan, 29 March 1981 (published by the Ecological Protection Committee of Michoacan).

ISRAEL

REPORT TO GOVERNMENT RECOMMENDS NUCLEAR POWER

Tel Aviv DAVAR in Hebrew 27 Feb 81 p 17

[Article by Yosef Mikhalski: "Israel's Nuclear Power; Professor Amos Horev is Convinced that Nuclear Power Stations Will Save \$200 Million a Year and Reduce Foreign Dependence"]

[Text] Within a month, the president of the Technion will submit to the government a report by the committee he heads on the problems involved in establishing nuclear power stations to supply electricity to the country. The report will cover all factors which might influence the decision to build such stations: the problem of financing a pool of technological expertise and manpower in Israel; the extent of outside support required, in terms of financing, expertise and perhaps manpower; and the long and short term effects of the project on the economy. It is highly probable that the report will also deal with the delicate subject of potential international pressures which are likely to result from Israel's request for nuclear aid. The intent is to stipulate that if aid is provided, Israel will participate in the various international conventions, thereby opening her atomic installations to outside monitoring.

Statements by official spokesmen, which have appeared in the media, indicate that in principle a decision has already been reached to implement the project. It has even been noted that Israel will build six nuclear power stations for electricity, two of which will be operative by 1992.

Amos Horev was not free to discuss his committee's conclusions. He was only willing to express, indirectly, his support of such projects. He did raise certain general issues, above all emphasizing that: "Economic factors dominate the decision to implement the project." The construction of a station such as the one proposed, with a 900 megaton capacity, will take 10-12 years to build and will cost, in today's prices, around \$2 billion. During this period, the demand for electrical power will increase by at least 50 percent (there are those who claim that it will increase by 60-70 percent.) Oil imports are costing the country \$2.5 billion a year. Coal is cheaper, but its cost is rising as well. The construction of a conventional power station also costs a small fortune. Analysis of the factors leads to the clear conclusion that a nuclear power station will save the country as much as \$200 billion a year by reducing oil imports, and half as much again in reduced coal imports. The second conclusion is that, contrary to public opinion, the investment required for a nuclear power station is not unusually high.

"As a rule, one should take into account the reduced reliance on foreign sources of energy, and especially the possibility that electrical power will be produced at a cheaper price. The price factor is important, since the cost of electricity significantly determines the cost of water, which in turn strongly influences the economy as a whole: for example, the price of agricultural products. A variety of means for producing the required quantities of electricity is essential for developing the economy and influences the standard of living, the quality of life and the mode of living. All this without mentioning the defense aspect of the issue."

Horev is convinced that Israel has the potential to go ahead with the project. However, there will undoubtedly be a need for intensive training of additional manpower and cultivation of existing staff.

The decision to implement the project will necessitate decisive, long-term planning, the establishment of priorities within the internal networks of the country, and allocation of financial and human resources. The project will be a powerful stimulus to Israel's industrial base, which when accelerated will in turn stimulate the establishment of other new industries. These will have a positive effect on Israel's ability to produce, beyond the project itself, and on her ability to compete in world markets.

As for foreign pressure, Horev would only say: "The subject is complex. It is clear to me that they won't want to give us nuclear power stations with no commitments on our part." Since Horev would say no more on the subject, we can only bring to mind statements by Professors Yiftah and Aren, and other scientists, who have declared that if worse came to worst, Israel could build the power stations herself. If this came to pass, it would cost more and take longer to implement, but the power station would be built.

However, Amos Horev does not see the issue of nuclear power stations as the nation's most pressing and complex problem. According to Horev, we have been stricken by a serious economic crisis, which leaves its mark on all phases of life in Israel, her future, and her ability to stand up to difficult tests and execute projects which are important and essential to her future, such as the nuclear power stations. This problem, according to Horev, is more basic and comprehensive than the nuclear issue and even precedes it. When I asked if it was possible that following the elections there would be a national or nearly national consensus on the economy, he answered highly doubtfully: "We are clearly in an economic crisis which requires emergency measures. To date, the measures dictated by the situation have not been taken."

"The various parties are not divided with regard to the gravity of the situation. Perhaps their leaders are privately of one mind as to the solutions required. However, when it comes to implementing appropriate solutions, political nuances, strengths, and even differences of opinion among the various groups surface. The dependence of elected officials on voters complicates the situation still more, especially in an election year."

In Horev's opinion, an overt, national consensus exists to the effect that the country's future depends on industrialization, and not just industrialization, but rather the development of those sectors which are rich in technology, knowledge and capital. The problem of insufficient manpower can be overcome. True, it is difficult to govern and lead Jews, who are by nature "soloists" and do not have the traits of orchestra members. However, this individualism conceals an enormous advantage, if one only knew how to exploit it. It should be used to establish new, modern industries and to transform existing industries in order to create industrial networks whose quality, and the quality of the products manufactured, would guarantee a market in the developed world and generate large profits. This profitability is an absolute condition for industrial advancement, funding of development and advanced research, and continued elevation and improvement of the standard of living. Horev points out that on these issues the country is not divided, and everyone clearly perceives the objective limitations of the various sectors.

In fact, Israel already has successful, science-oriented industries. But the future of these industries should be viewed with guarded optimism. Although they have managed to develop a few products which have been successful in world markets, we do not know if many of these enterprises will be able to maintain themselves. They will in the future, even over a relatively short period, be able to develop other successful items which will serve as a "calling card" in world markets: "The difficulty lies in the fact that research and development of new products takes a long time and costs a great deal of money. The risk is great, because only a small percentage of the experiments succeeds. It is therefore clear to me that industry must unite within a larger framework.

An excellent example which should be emulated is that of the Koor concern. What industry has achieved to date is admirable, but, this asset, which must be further developed and preserved, may be lost if appropriate steps are not taken: organization, financing, research, and more. These problems must be foremost among the concerns of the government. They cannot be perceived in the short run, in the span of a single measure."

Amos Horev believes that the road to success is contingent upon controlling black market capital which has become as important as the official economy and which has no small influence on the inflation rate. It is also contingent upon the elimination of "indexing" in the existing wage system. In this sphere, the difficulty lies in the struggle against powerful groups who monopolize the provision of essential services to the country and her citizens--for example, the power company, El-Al, and others.

He does not know how to overcome these difficulties smoothly, as is being done today. He is not convinced that taking emergency measures would necessarily mean the legislation of more stringent laws. It would suffice to enforce existing laws and to make full use of the existing educational system. The key rests in establishing a true government which would set a clear and discerning economic policy, one which would strike a balance between positive incentives in the economy (hard work, increased productivity) and negative ones, the essence being to eliminate non-productive elements. Somehow, what is required is a government which will not compromise and flirt its ways to the upcoming elections when the vital interests of the country are at stake.

9811

CSO: 5100/4729

ENRICHED URANIUM PRODUCED FOR RESEARCH REACTOR

Johannesburg THE CITIZEN in English 29 Apr 81 p 3

[Article by Keith Abendroth]

[Text]

SOUTH AFRICA has succeeded in beating a political boycott on fuel for her Safari Atomic Research Reactor — and is now able to produce all medical and research radio isotopes necessary despite running at quarter its normal capacity.

The Minister of Mineral and Energy Affairs, Mr F W de Klerk, announced the breakthrough on the fuel front at midnight, saying in future the reactor would be operated on locally produced fuel elements.

He said that for international political reasons it had not been possible for the country to obtain nuclear fuel for the reactor since 1976.

As a result of this and because the country could not afford to curtail the Atomic Energy Boards' research programme and the production of radio isotopes for medical use, it had been decided to make a serious attempt to supply the fuel from local sources.

The Uranium Enrichment Corporation had now succeeded in producing a limited quantity of 45 percent enriched uranium — the minimum that could be used in Safari I.

This was processed and manufactured into fuel elements by the Atomic Energy Board.

As was already reported to the International Nuclear Fuel Evaluation Study Group — in which 86 countries and five international organisations took part — the Atomic Energy Board launched a development programme.

This was intended to master the technology for the production of fuel elements of the lowest possible enrichment suitable for operation of Safari I.

As only a limited quantity of 45 percent enriched uranium could be produced to date, the reactor would be operated provisionally at a quarter of its normal capacity of 5 megawatts.

"Even at this lower power it is possible to produce locally those radio isotopes most essential for medical purposes and to continue a large number of research projects dependent on the reactor," Mr De Klerk said.

The reactor would remain under International Atomic Energy Agency safeguards, in terms of the trilateral safeguards agreement between South Africa, the USA and the agency.

SOUTH AFRICA

BRIEFS

PRODUCTION PLAN FOR ENRICHED URANIUM--The South African Atomic Energy Board's research reactor will be driven by locally-produced atomic fuel elements in future. This has been announced in Pretoria by the minister of mineral and energy affairs, Mr F. W. de Klerk. He said that since 1976 it had not been possible for South Africa to obtain nuclear fuel for the (?Safari-1) research reactor because of political reasons. It had therefore been decided that a strong endeavor has to be made to produce nuclear fuel in South Africa. It had also been most important that the broad research program, particularly the manufacture of radioisotopes for medical purposes, should not be interrupted because of the lack of nuclear fuel. Mr de Klerk said that the South African Uranium Enrichment Corporation had succeeded in producing a limited quantity of 45 percent enriched uranium which had been turned into nuclear fuel by the Atomic Energy Board. Because only a limited quantity of 45 percent enriched uranium had been produced, (?Safari-1) would initially be activated at only a quarter of its normal capacity of 20 megawatts. [Text] [LD290340 Johannesburg International Service in English 0300 GMT 29 Apr 81]

NUCLEAR FUEL PRODUCTION ASSESSED--The chairman of the South African Uranium Enrichment Corporation, Dr (A. J. Roux), says South Africa will be able to produce sufficient nuclear fuel to power the country's first nuclear power station economically. In an interview with the SABC [South African Broadcasting Corporation], he said that as soon as the corporation's plant was completed it would be able to produce about 50 tons of enriched uranium a year which was required by the Koeberg power station. With regard to the refusal by the United States to supply fuel for Koeberg unless South Africa signs the Nuclear Non-proliferation Treaty, he said that speculation that Koeberg would operate at a loss if it had to use South African enriched uranium was based on faulty information. Those who thought so were not aware of South Africa's capacity in this field. [Text] [LD040432 Johannesburg International Service in English 0400 GMT 4 May 81]

CSO: 5100/2243

PAPER DEFENDS NUCLEAR AGREEMENT WITH FRANCE

Stockholm DAGENS NYHETER in Swedish 8 Apr 81 p 2

[Editorial: "Shattered Glass"]

[Text] Sven Aner is an unpleasant person. He reports on general directors and such persons here and there for this and that. As in the present case (see DAGENS NYHETER -- Debate, 3 April), in which he reports the nationally known, COGEMA [Nuclear Materials General Company] agreement stamped "secret" not to guarantee that so-called processed Swedish nuclear waste ever become vitrified. The agreement states that if the waste is ever vitrified it will be done at the expense of the French company:

"If the Processor decides to transform to a vitrified state the liquified fission products from the Customer's fuel, such transformation shall be done at the Processor's expense."

Paragraph 6.2.4 of the processing agreement of 19 April 1977, between French COGEMA ("Processor") and Swedish Nuclear Fuel Supply (the "Customer").

To be sure, this is not very binding as an agreement. And certainly the power industry and the authorities and some governments, as well as the public, have been assured or believe that the nuclear waste can and will be vitrified., especially since the KBS [Nuclear Power Safety Project] report is entitled "Vitrified Waste from Processing." On the other hand, the reactors referred to are already loaded with fuel, so what is there to make trouble about?

And to be sure, it is generous of the Frenchmen to be willing to pay for the vitrification -- if -- they carry it out? Almost as generous as when Swedish Nuclear Fuel Supply, on behalf of the power companies, signed an agreement that obliges Sweden to pay 1 billion kronor and at worst double that amount even if there should never be any processing, not to speak of any vitrification.

What is Aner making trouble about? Does he not understand that what has happened and is happening is a political-psychological act to keep people from worrying about nuclear waste? Why should Sweden of all nuclear power countries insist upon knowing what is to be done with the waste before it is produced? Why must we have solved the problem by which the United States, the Soviet Union, France, West Germany, Great Britain, Japan and others have been baffled?

Moreover, the COGEMA agreement is in fact stamped secret, though it has become known. It must, of course, be out of respect for the secrecy that those responsible reply "no comment" when Aner and others protest that the reassuring agreement demanded by the law on conditions for new reactors is nothing but the emperors new clothes in the matter of vitrification and the KBS I method among other things and, consequently, a bluff. Any other explanation for the silence is, of course, impossible.

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CSO: 5100/2235

ENERGY MINISTRY GRANT ALLOWS URANIUM SEARCH IN SOUTH

Godthaab GRØNLANDSPOSTEN in Danish 5 Mar 81 p 9

[Text] The geological surveying of the uranium areas in South Greenland will continue. The outcome of the research project "South Uranium" has proved so promising that another grant from the research funds of the Energy Ministry may be expected within the next month. That means that the "South Uranium" project will continue in 1981 and 1982.

The "South Uranium" surveys in 1979 and 1980 have disclosed new "uranium districts" in South Greenland, i.e. areas with a higher uranium content or a higher radioactivity than normally.

The new surveys will take place in an area of approximately 15,000 square kilometers between Cape Farewell and Ivigtut. The surveying program, which will be prepared by the Geological Survey of Greenland, will not be dealt with by the Joint Council on Mineral Raw Materials in Greenland as it takes place within the framework of the Geological Survey of Greenland's general geological surveying of Greenland.

However, if favorable results are obtained in 1981 and 1982, they will have new and more profound projects in mind, says the Raw Materials Administration. It is pointed out that such possible projects will have to be approved by the Joint Council on Mineral Raw Materials in Greenland if it is a question of a more extensive search for concrete deposits with a view to winning uranium.

7262
CSO: 5100/2220

COUNTRY MAY REQUIRE NUCLEAR PLANT FROM USSR OR FRANCE

Helsinki HELSINGIN SANOMAT in Finnish 20 Feb 81 p 24

[Article: "Kalevi Numminen, IVO [Imatran Voima] Says: 'Nuclear Power Plant Only One of the Alternatives'"]

[Text] The incoming managing director of Imatran Voima, Kalevi Numminen, believes that the projections for Finland's new major power plant are not behind schedule. According to him, Finland will place an order for the power plant when the time is due, on the basis of scheduled need. In Numminen's opinion, the decision will have to be made after a couple of years, and the alternatives are: peat, coal, or a 1000 MW nuclear power plant from either the USSR or France.

"Imatran Voima's major investment has to be completed by about 1990. This presupposes that the decision on construction of the power plant will be made after a couple of years, around late 1982 and early 1983," Numminen said.

According to him, the recession and energy saving measures have led to the situation that Finland does not yet need a new major power plant. It was impossible to foresee this in 1977 when the long-range agreement was made. Numminen emphasizes that it was only said that the question of a 1000 MW power plant would be investigated--there was no agreement made yet then on an actual order.

Imatran Voima recently signed an agreement with the French to conduct an adaptability study. This will involve a thorough cost analysis as well as clarification of the degree of domesticity and technical and operational adaptations. Corresponding investigations will also be conducted on the peat and coal alternatives, Numminen said.

According to Numminen, the economic significance of choosing a nuclear power plant has been unduly exaggerated. "It is not significantly important from the point of view of trade economy. We must remember that the USSR only constructed a third of the Liviisa power plants. The Soviets would only build about a fourth of the 1000 MW nuclear power plant."

Numminen stated that a major power plant would cost about 4.5 billion marks. As only about 1 billion of this would fall to the share of the Soviets and that too would be divided upon the course of 8 years, the minor trade political significance becomes quite clear: it would only be a question of about 100 million marks a year.

"This power plant would not even make a great deal of difference in our trade with France. I believe our yearly import of French wine is of greater value than the nuclear power plant would be," Numminen stated.

In an interview with the Finnish Broadcasting System, acting General Director Ahti Karjalainen, who is the Finnish chief of the Economic Commission, stated that a 1000 MW nuclear power plant is not of essential significance in the trade between the countries. According to him, the matter now brought up by Gubanov and Maklakov is not a problem in the bilateral trade, and it was not discussed in the cooperation negotiations recently conducted in Moscow. Also the question of Sokli is frozen for the time being because of matters of cost.

9571

CSO: 5100/2216

POWER FIRM SAYS NUCLEAR PLANT RADIOACTIVE WATER WAS SAFE

Helsinki HELSINGIN SANOMAT in Finnish 20 Feb 81 p 24

[Article: "Imatran Voima Discusses Release of Radioactive Water Openly"]

[Text] Loviisa [HS] Imatran Voima held an informational meeting with the Loviisa municipality's trustees and officials and discussed openly the recent happenings and future plans at the Loviisa nuclear power plant.

The Loviisa residents did not even want to discuss further the admitted cases of water releases, and this lack of interest was probably partly caused by the fact that the information had been given so freely.

Not one Loviisa representative got upset as Imatran Voima disclosed, among other things, that it had deliberately released radioactive water into the waterways two to three times a year.

The water was released into the Gulf of Finland because its radioactivity content was so low that treatment in the waste solidification plant is not considered worthwhile. According to the Operations Director Anders Palmgren, the low radioactivity was the result of inconsistencies in operations.

The release of waste to the waterways also means that the Loviisa power plants are left with plentiful storage capacity for new liquid wastes. It appears then unnecessary to build in the nearby future the approximately 20 million marks solidification plant for liquid wastes.

Civil Engineer Heikki Niininen from Imatran Voima disclosed that a decision will be made about the solidification plant construction in a matter of months.

"So far, it is not even possible to conduct experimental operations in the solidification plant because there is so little waste. At the moment, the tanks are filled to about 10 percent of their capacity, and the present capacity is estimated to be sufficient for 4 more years. Imatran Voima is also considering the possibility of additions to the present tank capacities," Niininen stated.

9571

CSO: 5100/2216

FINLAND

BRIEFS

NUCLEAR PLANT NEEDS REPAIRS--Continuous rotary failures in the generator supplied by Swedish Asea-Atom have forced Teollisuuden Voima (TVO) to order a spare system worth about 120 million marks for both its nuclear plants from West Germany. TVO ordered the rotaries quietly from West German Brown-Boveri company last summer. The machinery which actually generated electricity in the plant will be supplied to TVO at the end of next year. Managing Director Magnus von Bonsdorff points out that at least at this stage it's purely a question of a spare system. "Installment of the spare rotaries depends completely on how Asea-Atom's new rotaries, which will be supplied next summer as guaranteed work, start to operate," Bonsdorff explains. If the new rotaries of the Swedish supplier will not start working properly, they will be replaced by West German machinery, the installment of which will, according to Bonsdorff, take a few months. The rotary failures have postponed the commercial use of Olkiluoto 2 Unit for almost a year. [Text] [Helsinki HELSINGEN SANOMAT in Finnish 26 Feb 81 p 3] 9677

OLKILUOTO PLANT AGAIN HALTS--TVO's Olkiluoto 2, which has caused worry lately, has again stopped. The plant has come to a standstill because it has too much vibration. Olkiluoto reports that it will check the so-called torso axle in the magnetizing machine which has to be pulled out of the machine. At the same time also a rotary will be examined which has been installed since the beginning of March when the plant started producing electricity with full force. It is expected that the check will take about a week this time. [Text] [Helsinki HELSINGEN SANOMAT in Finnish 25 Mar 81 p 13] 9677

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